Warning the population at risk -Experiences in Japan-

Kazuhiko FUKAMI
International Center for Water Hazard and Risk Management Center (ICHARM)
Public Works Research Institute, Japan

Japanese islands are located in the Asian Monsoon Region where we often have strong storm events more than 50mm/h or 300mm/day, and Japanese rivers are very steep and short compared with continental rivers. Therefore, Japanese people have been continuously suffering from flash flood events. Before introducing the concept of western civil engineering, i.e. until the Edo Era (-1860s), it had been difficult to control floods. Therefore, Japanese people had been "living with floods", for example, by raising the base of house, preparing boats, polders for housing area, flood damage mitigation forests along rivers, etc. In such a history, community-based flood fighting corps coupled with community association had been created all over Japan. After studying Western flood-control technology, many structural flood control systems such as embankments, dam reservoirs, etc. have been constructed in each major river system since 1890's, mainly since 1960's. Those measures decreased large-scale catastrophic flood disasters and their damages and changed flood-prone alluvial plains into rich granaries and urbanized area with concentrated properties. At the same time, however, the flood damage potential was increased by concentrated populations and properties in such low lands. As a result, we still often suffer from typical urban flood disasters and the economic damage has not decreased yet. Japan is now getting into a new era of aging society. Therefore, it has been becoming very difficult to continue to rely on structural flood control policy only. Based on such backgrounds, integrated flood risk management policy is indispensable including non-structural measures such as the restoration of basin-wide flood retarding function, land-use control, preparedness raising with hazard maps, etc. The long efforts to develop real-time river information system to monitor meteorological and hydrological situations in the upstream of rivers, even when meteohydrologic forecasting technology had been poor, are also categorized in this non-structural policy. Such experiences in Japan should be useful as well in other rapidly urbanized countries in monsoon regions.

In the presentation, the experiences above in Japan, including flood forecasting and warning system and its dissemination system, are discussed. In particular, the following points will be focused on:

1) Importance of real-time monitoring system as a fundamental basis for forecasting and warning
2) Preparation of the warning dissemination network system (information sources, analyses, recipients) with standard style
3) Preparedness for proper evacuation plan and real actions